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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,083	07/31/2003	Morio Nakao	TI-35373	2030

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EXAMINER
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GRAYBILL, DAVID E

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 02/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/631,083	<b>Applicant(s)</b> NAKAO, MORIO	
	<b>Examiner</b> David E. Graybill	<b>Art Unit</b> 2822	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 10-12 and 14-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10-12 and 14-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Applicant's election without traverse of the species of ultra-violet radiation, claims 10-12 and 15-17, in the reply filed on 11-21-5 is acknowledged.

In the rejections *infra*, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 10-12, 14 and 16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fukutomi (20020094606).

At paragraphs 6-8, 98, 168, 170-173 and 185, as the "seventeenth embodiment," Fukutomi discloses a method for packaging an integrated circuit chip, said chip including active and passive surfaces with contact pads "external connecting portions" on said active surface, said method comprising the steps of: providing a substrate, said substrate comprising: a carrier tape "film" 51; a patterned metal layer 52 having first and second surfaces and openings extending between said first and second surfaces, said second surface of said patterned metal layer removably attached to said carrier tape; a first inherently insulating layer 53 covering said first surface

of said patterned metal layer and portions of said carrier tape exposed in said openings in said patterned metal layer; attaching said integrated circuit chip 54 to said first insulating layer on said substrate; encapsulating 56 said chip; and removing said carrier tape from said patterned metal layer to expose said second surface of said patterned metal layer; applying a second insulating layer 51 to said second surface of said patterned metal layer, said second insulating layer covering a portion of said second surface of said patterned metal layer and leaving said second surface of said patterned metal layer exposed in windows "nonthrough-holes" in said second insulating layer; attaching solder balls "external connection terminals" to said second surface of said patterned metal layer exposed in said windows in said second insulating layer; wherein said step of removing said carrier tape is preceded by the step of exposing said carrier tape to ultra-violet radiation "excimer laser"; wherein said step of applying a second insulating layer comprises applying solder resist to said second surface of said patterned metal layer.

To further clarify, layer 53 is inherently insulating at least because it inherently insulates the wiring pattern and substrate from the chip and ambient atmosphere.

Although Fukutomi does not appear to explicitly disclose that 51 is "solder resist," the language "solder resist" is a statement of intended use of the layer that does not appear to result in a structural difference between

the claimed layer and the layer of Fukutomi. Further, because the layer of Fukutomi appears to have the same structure as the claimed layer, it appears to be inherently capable of being used for the intended use, and the statement of intended use does not patentably distinguish the claimed layer from the layer of Fukutomi. Indeed, Fukutomi discloses that layer 51 is "polyimide" and, as evidenced by Toyosawa (20020033524), paragraph 7, polyimide is inherently capable of being used as a solder resist. The manner in which a product operates is not germane to the issue of patentability of the product; Ex parte Wikdahl 10 USPQ 2d 1546, 1548 (BPAI 1989); Ex parte McCullough 7 USPQ 2d 1889, 1891 (BPAI 1988); In re Finsterwalder 168 USPQ 530 (CCPA 1971); In re Casey 152 USPQ 235, 238 (CCPA 1967). Also, "Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim."; Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). And, "Inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims."; In re Young, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 136 USPQ 458, 459 (CCPA 1963)). And, claims directed to product must be distinguished from the prior art in terms of structure rather than function. In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a

device does [or is intended to do]." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukutomi (20020094606).

As the seventeenth embodiment, Fukutomi does not appear to explicitly disclose a carrier "tape."

Regardless, as cited, as the seventeenth embodiment, Fukutomi discloses a polyimide carrier film. In addition, as cited, Fukutomi discloses that a polyimide carrier film and a polyimide carrier "tape" are alternatives and equivalents; therefore, it would have been obvious to substitute or combine the film of Fukumoto for or with the tape of Fukumoto. See *In re May* (CCPA) 136 USPQ 208 (It is our opinion that the substitution of Wille's type seal for the cement of Hallauer in Figure 1 would be obvious to persons of ordinary skill in the art from the disclosures of these references, merely involving an obvious selection between known alternatives in the art and the application of routine technical skills.); *In re Cornish* (CCPA) 125 USPQ 413;

In re Soucy (CCPA) 153 USPQ 816; *Sabel et al. v. The Wickes Corporation et al.* (DC SC) 175 USPQ 3; *Ex parte Seiko Koko Kabushiki Kaisha Co.* (BdPatApp&Int) 225 USPQ 1260; and *Ex parte Rachlin* (BdPatApp&Int) 151 USPQ 56. See also *Smith v. Hayashi*, 209 USPQ 754 (Bd. of Pat. Inter. 1980) (However, there was evidence that both phthalocyanine and selenium were known photoconductors in the art of electrophotography. "This, in our view, presents strong evidence of obviousness in substituting one for the other in an electrophotographic environment as a photoconductor." 209 USPQ at 759.). An express suggestion to substitute one equivalent component or process for another is not necessary to render such substitution obvious. *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982). "It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition to be used for the very same purpose.... [T]he idea of combining them flows logically from their having been individually taught in the prior art." *In re Kerkhoven*, 626 F.2d 846, 850, 205 USPQ 1069, 1072 (CCPA 1980) (citations omitted). See also *In re Crockett*, 279 F.2d 274, 126 USPQ 186 (CCPA 1960); *Ex parte Quadranti*, 25 USPQ2d 1071 (Bd. Pat. App. & Inter. 1992).

Also, Fukutomi does not appear to explicitly disclose wherein said step of applying a second insulating layer comprises applying less than 30  $\mu\text{m}$  of insulating layer to said second surface of said patterned metal layer.

Nevertheless, as cited, Fukutomi discloses that the second insulating layer thickness is a result effective variable. Moreover, as reasoned from well established legal precedent, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose these particular dimensions because applicant has not disclosed that, in view of the applied prior art, the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another dimension. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).



Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto as applied to claim 10, and further in combination with Juso (6265783).

Fukumoto does not appear to explicitly disclose wherein said step of providing a substrate with a first insulating layer comprises providing a substrate with a solder resist layer covering said first surface of said patterned metal layer.

Nevertheless, at column 5, lines 1-12; and column 7, lines 37-49, Juso discloses wherein a step of providing a substrate 5 with a first insulating "protective" layer comprises providing a substrate with a solder resist layer 7 covering said first surface of said patterned metal layer 10. Furthermore, it would have been obvious to combine this disclosure of Juso with the disclosure of Fukumoto because it would protect the patterned metal layer and improve adhesive strength.

The art made of record and not applied to the rejection is considered pertinent to applicant's disclosure. It is cited primarily to show inventions relevant to the examination of the instant invention.

**For information on the status of this application applicant should check PAIR:** Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**Alternatively, applicant may contact the File Information Unit at (703) 308-2733. Telephone status inquiries should not be directed to the examiner. See MPEP 1730VIC, MPEP 203.08 and MPEP 102.**

Any other telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours:

Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (571) 273-8300.



David E. Graybill  
Primary Examiner  
Art Unit 2822

D.G.  
30-Jan-06